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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/542,616	07/18/2005	Teodor Aastrup	70407-79785	7334
26288 7590 03/29/2007 ALBIHNS STOCKHOLM AB BOX 5581, LINNEGATAN 2 SE-114 85 STOCKHOLM; SWEDEN STOCKHOLM, SWEDEN			EXAMINER FITZGERALD, JOHN P	
			ART UNIT 2856	PAPER NUMBER

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/29/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	Application No. 10/542,616	Applicant(s) AASTRUP ET AL.	
	Examiner John Fitzgerald	Art Unit 2856	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 February 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 and 23-28 is/are pending in the application.
- 4a) Of the above claim(s) 6,7 and 11-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,8-10 and 23-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 July 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Claims 6, 7 and 11-13 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 06 February 2007.

### ***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

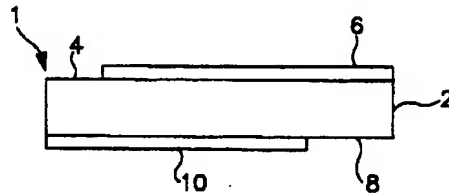
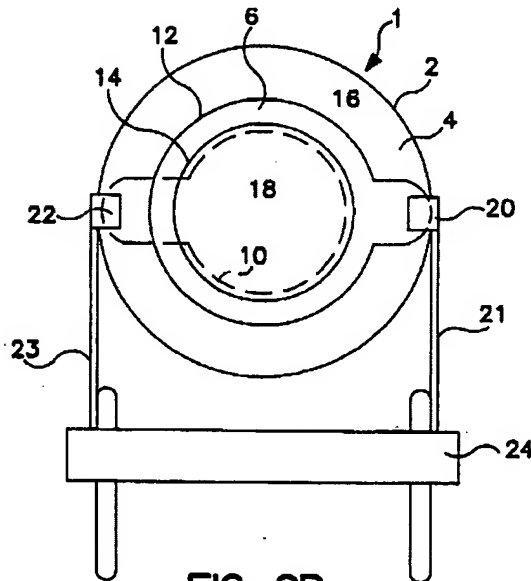
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4, 8-10, 23 and 24 are rejected under 35 U.S.C. § 102(b) as being anticipated by US 5,705,399 to Larue. Larue discloses a thickness shear mode (TSM) piezoelectric resonator and method for use in detecting/measuring an analyte in a medium (capable of use with any fluid (i.e. liquids and gases) (as recited in claim 24) (see Figs 2a and 2b below) having a quartz crystal plate (16) having two flat (as recited in claim 10) crystal surfaces (first and second) wherein the first crystal surface comprises a first electrode (10) having a surface area smaller than the surface are of a second electrode (6) on the second crystal surface (as recited in claim 4) and wherein the first crystal surface has a first contacting area connected to the first electrode, as well as the second crystal surface and second electrode (as recited in claims 8 and 9) and wherein

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the surface area of the first electrode is  $6.25\text{mm}^2$  (i.e. radius = 2.5 mm) (meeting limitations of claims 1 and 2).

**FIG. 2A****FIG. 2B**

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

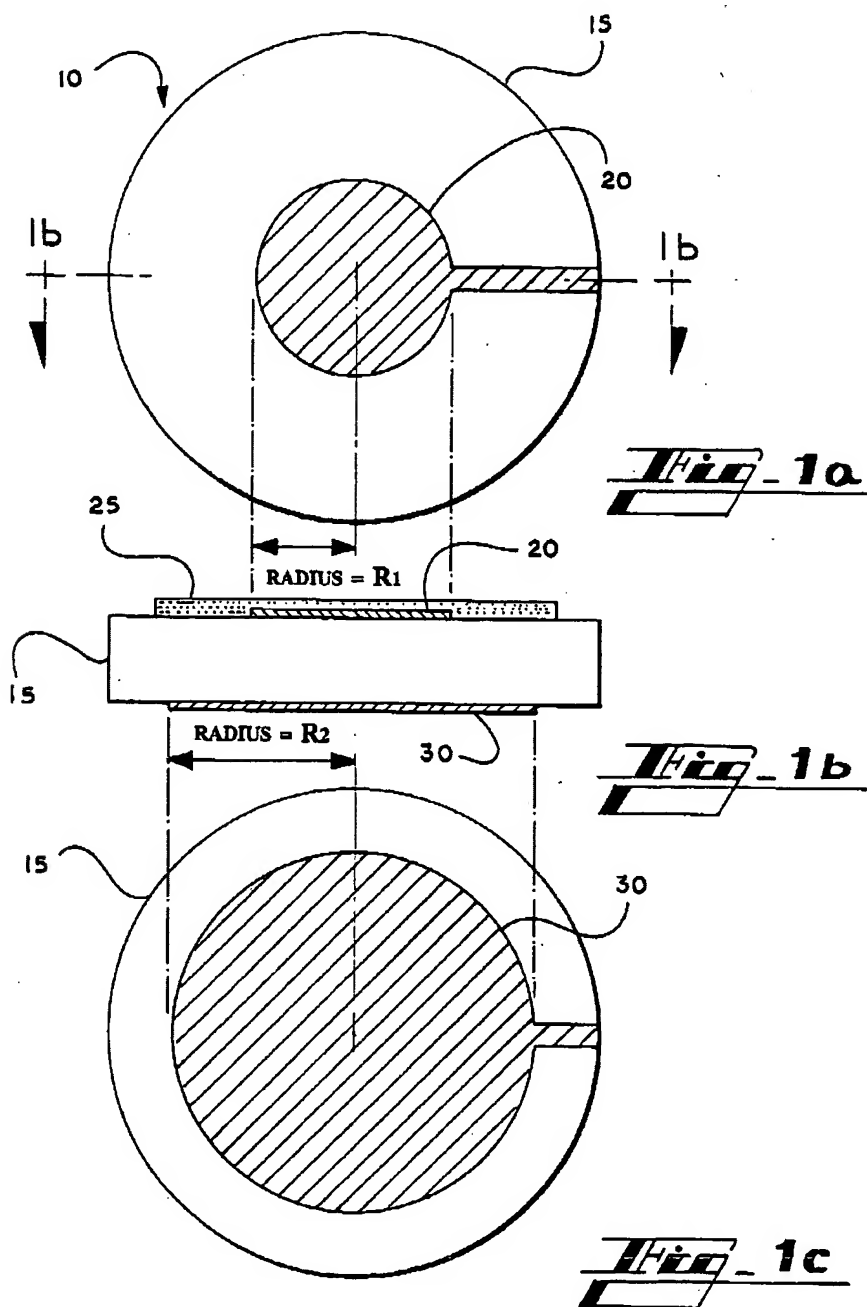
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5. Claims 1-5, 8-10 rejected under 35 U.S.C. § 103(a) as being unpatentable over US 5,852,229 to Josse et al. Josse et al. disclose a thickness shear mode (TSM) piezoelectric resonator and method for use in detecting/measuring an analyte in a medium (capable of use with any fluid (i.e. liquids and gases) (as recited in claim 24) (see Figs 1a-1c below) having a quartz crystal plate (15) having two flat (as recited in claim 10) crystal surfaces (first and second) wherein the first crystal surface comprises a first electrode (20) having a surface area smaller than the surface area of a second electrode (30) on the second crystal surface (as recited in claim 4) and wherein the first crystal surface has a first contacting area connected to the first electrode, as well as the second crystal surface and second electrode (as recited in claims 8 and 9).

Although Josse et al. does not disclose specific quantitative surface area, that is, specific dimensional/geometrical aspects of the electrodes (i.e. surface area  $< 15 \text{ mm}^2$  or  $10 \text{ mm}^2$  or at least  $0.05 \text{ mm}^2$  or is  $1-5 \text{ mm}^2$  or the distances between the crystal edge and the electrode edge being at least 0.2 mm or 1 mm or 2mm) (as recited in claims 1-3, 5 and 25-28), Josse et al. does carefully teach and explain that 'conductivity of the loading medium results in the expansion of the effective electrode surface area, and that the electroded regions and their electrostatic capacitance is a result of the electrode size, shape and configuration, in other words, the electrode surface area. Josse et al. further teach that the geometries and/or surface areas of the first and second electrodes must differ and that the variations affect the critical frequencies in a predictable way. The variations in electrode structure can increase the sensitivity of the resonator, the ability to sense a variety of materials of interest and the ability to determine concentration of one or more materials of interest. Lastly, the variations in electrode sizes affect the resonant frequencies and anti-resonant frequencies. Therefore, it would have been obvious to

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one having ordinary skill in the art at the time the invention was made to vary the size/surface area/geometry of first electrode to any desired size/area depending on desired analytes to measured and frequencies of operation, meeting the limitations of claims 1-3, 5 and 25-28).



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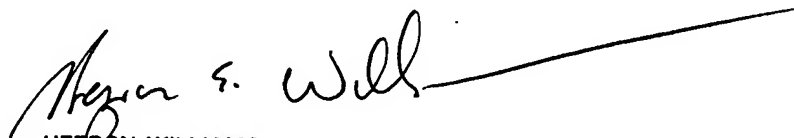
***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Applicant is invited to review PTO form 892 accompanying this Office Action listing Prior Art relevant to the instant invention cited by the Examiner.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Fitzgerald whose telephone number is (571) 272-2843. The examiner can normally be reached on Monday-Friday from 7:00 AM to 3:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams, can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JF  
03/26/2007



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